Journal of Pharmaceutical and Biomedical Analysis Letters
ISSN: 2347-4742 | https://doi.org/10.30904/j.jpbmal.2026.5025
J. Pharm, Biomed. A. Lett., 2026; 14(2): 42-46

An Observational Study on Clinical Profile & Etiological Factors and Complications of Liver Function Tests

SK. Meharunnisa*, N. Bala Jahnavi, Afroz Patan, Yadala Prapurna Chandra

Ratnam Institute of Pharmacy, Pidthapolur (V), Muthukur (M), Nellore (Dt), Andhra Pradesh – 524343, India

***Corresponding E-mail:** Mehar.henny123@gmail.com*

Keywords
Observational Study, Liver, Silver nanoparticles, Clinical Profile, Etiological Factors, Complications

Received 20-04-2026
Revised 10-05-2026
Accepted 02-06-2026
Published 14-07-2026

ABSTRACT
The present study finds out the etiological causes and clinical profile data for liver function tests. Monitoring and managing of liver enzyme levels in different liver disease find out the etiological causes of different liver diseases. Measure the severity of a disease, particularly scarring of the liver (cirrhosis). To Monitor the progression of a disease, such as viral or alcoholic hepatitis, and determine how well a treatment is working. The study concluded that we have collected the data from the hospitalized patients. We have analyzed the data according to the study and determined above. Our study is about estimation of liver functional tests and causes of elevated liver functional changes by different parameters. The clinical pharmacist and family members has to educate the people regarding the complications and consequences associated with liver function tests and serious causes with elevated levels. Awareness has to be created to the public due to elevation of levels to make the society and health mission will fulfill by promote awareness among society.

INTRODUCTION

Liver is the largest solid organ in the human body. It is a dark reddish brown vital organ, both metabolic and excretory function, it is a largest gland lies on the right side of the abdominal cavity beneath the diaphragm. In males-1.4-1.6kg, females-1.2-1.4kg. The liver has two lobes right and left, each lobe is made up of thousands of hexagonally shaped lobules. Each lobule is made up of numerous liver cells called hepatocytes. Liver has a hepatic artery and portal vein. Hepatic artery provides oxygen and nutrition. Portal vein delivers substances absorbed by the gastrointestinal tract for metabolic conversion and/or removal. Liver is the largest organ of the body weighing about 1.5kg.

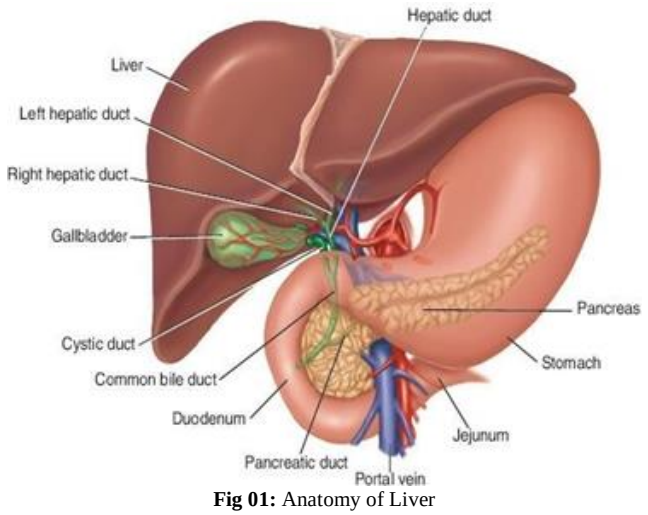

Fig 01: Anatomy of Liver

Indications and Interpretations:

- As the liver is involved in excretory, synthetic and metabolic functions, LFT may be ordered by clinicians as a standard order for non-specific symptoms[such as fever, fatigue, nausea, abdominal pain, muscle pain, joint pain and weight loss] or as part of general health screening for opportunistic discovery of different liver diseases.
- Liver diseases may be broadly categorized into 4 groups such as Inflammatory, Vascular, Metabolic, Neoplastic disorders.
- Liver function tests may also used to monitor possible side effects of medications(NSAIDs like (diclofenac) ,Birth control pills, anabolic steroids,
- Chlorpromazine, methyldopa, isoniazid. Measure severity of disease particularly scarring of the liver.

Diagnosis:

Liver function Tests:

These include serum albumin levels and prothrombin time, which indicate hepatic protein synthesis, bilirubin, which is a marker of whole liver function, and transaminase levels, which indicate hepatocellular injury and death but cannot be used alone to make a diagnosis. The impedance of bile flow is estimated by alkaline phosphatase levels.

Imaging tests:

Imaging tests, such as an ultrasound scan, CT scan, or MRI scan, may also be performed. These scans generate detailed images of the liver. The presence of alcoholic liver disease is not confirmed by imaging studies.can be used to detect hepatic parenchymal changes. Fatty change, cirrhosis, and neoplastic

diseases of the liver can be diagnosed using ultrasound, CT scan, and MRI.

Liver biopsy:

A fine needle is inserted into body and a small sample of liver cell is taken under local anesthesia and is examined under microscope. Biopsy may be indicated in: Any patients with serum aminotransferases elevations that persist for above 6 months, even if the patient is asymptomatic. Patient who has evidence of liver failure [eg, abnormal prothrombin time, hypoalbuminemia] in addition to elevated aminotransferases If a coagulopathy is present, transjugular biopsy is usually safer than percutaneous biopsy. Patient in whom the diagnosis of alcoholic hepatitis is uncertain based upon clinical and laboratory findings.

RESULTS AND DISCUSSION

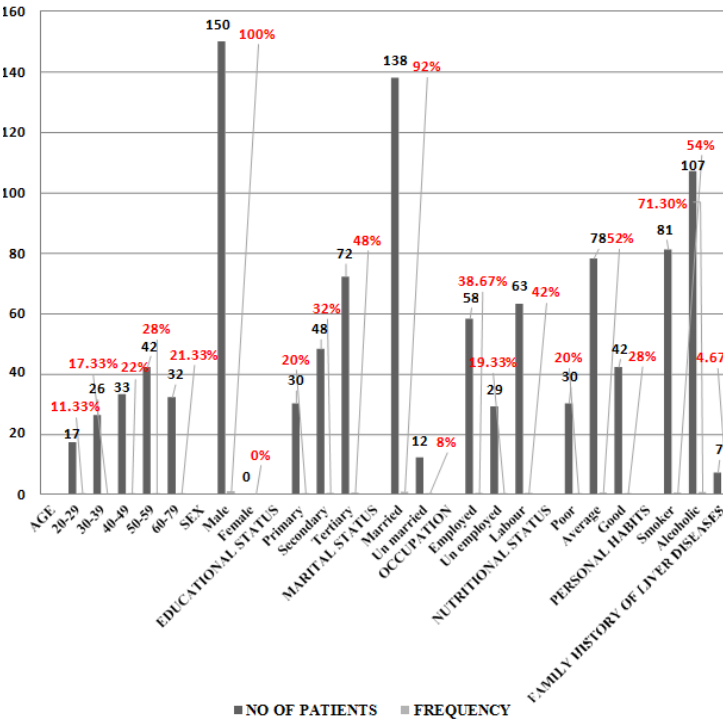

Fig.2: Demographic details of the patients with no of patients & frequency

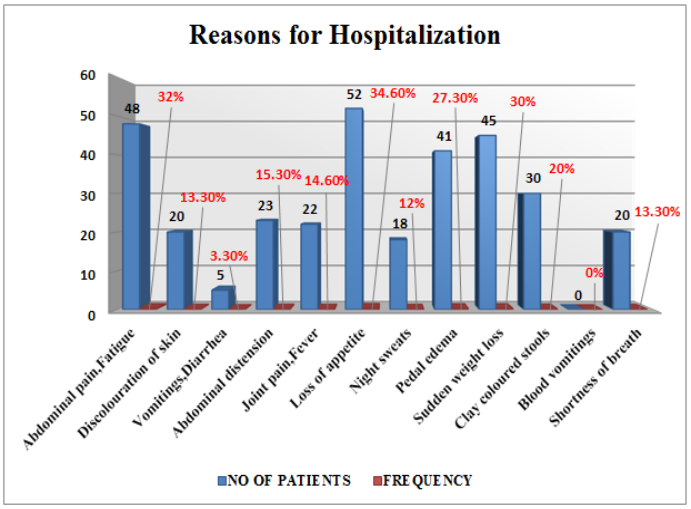

Fig.3: Distribution of data based on reasons of hospitalization

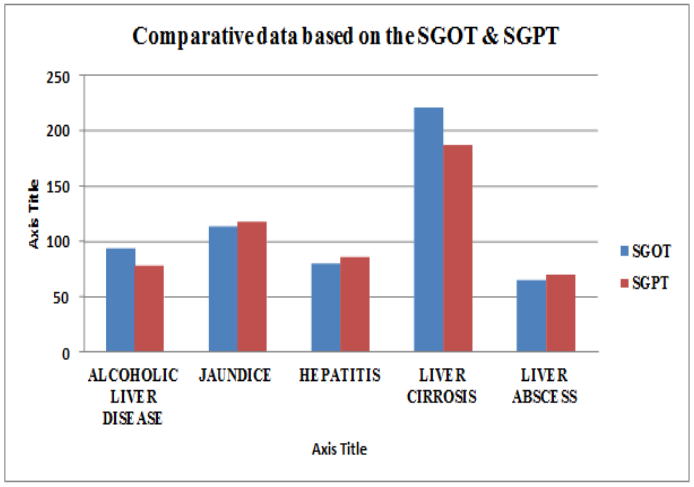

Fig.4: Comparative data based on the SGOT & SGPT

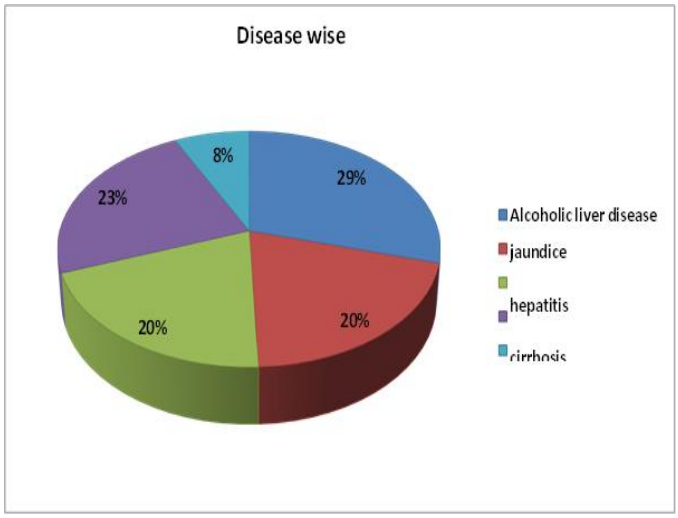

Fig.5: Distribution of data based on diseases

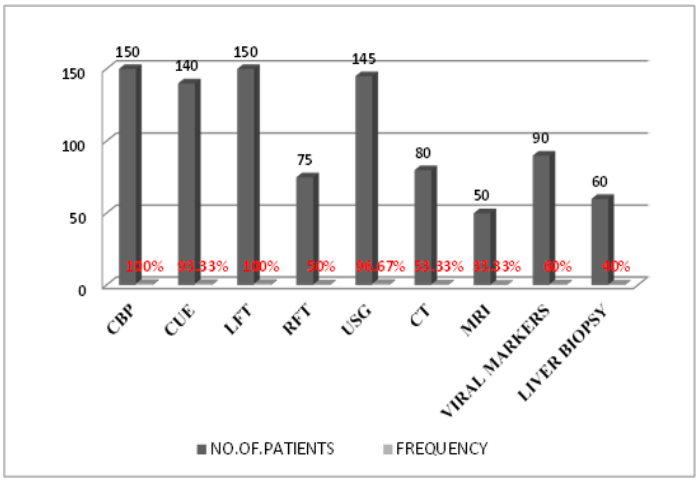

Fig.6: Distribution of data based on diagnosis

Table.1: Disease wise distubution

Name of disease	No of patients	Frequency
Alcoholic liver disease	44	29%
Janudice	30	20%
Hepatitis	30	20%
Liver cirrhosis	35	23%
Liver Abscess	11	8%

Table.2: Diagnostic Parameters

Name of the test	No of patients	Percentage
Complete blood picture(CBP)	150	100%
Complete urine examination (CUE)	140	93.33%
Liver function test(LFT)	150	100%
Renal function test (RFT)	75	50%
Ultra sonogram (USG)	145	96.67%
Computed Tomography scan (CTs)	80	53.33%
Magnetic resonance imaging(MRI)	50	33.33%
Viral markers	90	60%
Liver biopsy	50	40%

DISCUSSION

- Study "A Prospective study of etiological factors and clinical profile of liver functional tests"150 patients are enrolled. Among these highest number of patients 44[29.33%] are diagnosed with Alcoholic liver disease and lowest number of patients 11[7.33%] are diagnosed with liver abscess.
- Among these 150 patients based on gender all the patients are male patients [100%].
- Among these 150 patients based on age highest number of patients with an age of 50-60 years 42[28%] and lowest number of patients with an age of 20-30 years 17 [11.33%].
- Among these 150 patients based on educational status highest number of patients observed in tertiary 72[48%] and lowest number of patients observed in primary 30[20%]
- Among these 150 patients based on marital status 138[92%] are married and 12[8%] are unmarried.
- Among these 150 patients based on occupational status highest number of patients were observed with the occupation of labour 63[42%] and lowest number of patients were observed with the occupation of employment 29[19.33%]
- Among these 150 patients based on nutritional status 42[28%] are good and 78[52%] are average and 30 [20%] are poor.
- Among these 150 patients based on personal habits smoker 81[54%] and 69 [46%] are non-smokers and 107[71.3%] are alcoholic and 43[28.6%] are non-alcoholic.
- Among these 150 patients based on family history 7 [4.67%] are affected.
- Among these 150 patients based on reasons for hospitalization highest number of patients 52[34.6%] are admitted with loss of appetite and lowest number of patients 0[0%] are admitted with blood vomiting's.
- Among these 150 patients based on diagnostic tests highest number of patients 150[100%] are tested with complete blood picture [CBP] and liver function tests [LFT] and least number of patients are tested with liver biopsy and magnetic resonance imaging [MRI].
- Among these 150 patient's laboratory parameters based on the SGOT and SGPT data highest value were observed in the liver cirrhosis and lowest value observed in liver abscess.
- Among these 150 patients based on the prognosis 37 members are treated with anti-viral drugs among those highest number of patients are treated with acyclovir20[13.3%] and lowest number of patients are treated with tenofovir2[1.3%].
- Among these 150 patients 145 members are treated with antibiotics among those patients highest number of patients are treated with ceftriaxone62[41.3%] and lowest number of patients are treated with 20[13.3%].
- Among these 150 patients 80 members are treated with beta blockers among those highest number of patients are treated with propranolol 48[32%] and lowest number of patients are treated with metoprolol succinate12[12%].
- Among these 150 patients 15[10%] members are treated with anti-fungals[ciprofloxacin].
- Among these 150 patients in vitamin supplements highest number of patients are treated with MVI 80[53.3%] and lowest number of patients are treated with vitamin K 48[32%].
- Among these 150 patients 63[42%] member of patients are treated with hepatoprotectants [Hepamerz].
- Among these 150 patients 68[45.3%] member of patients are treated with biliary agents [ursodeoxycholic acid].
- Among these 150 patients 35 members are treated with laxatives among those 20[13.3%]are treated with Duphalac and 15[10%] are treated with cremaffin.
- Among these 150 patients 40[26.6%] are treated with disulfiram.
- Among these 150 patients 32[21.3%] are treated with corticosteroids[prednisolone]

CONCLUSION

Our prospective study concluded that we have collected the data from the hospitalized patients. We have analyzed the data according to the study and determined above. Our study is about estimation of liver functional tests and causes of elevated liver functional changes by different parameters. The clinical pharmacist and family members has to educate the people regarding the complications and consequences associated with liver function tests and serious causes with elevated levels. Awareness has to be created to the public due to elevation of levels to make the society and health mission will fulfill by promote awareness among society. Quitting of alcohol consumption and health diet will overcome further complaints and liver failure

CONFLICT OF INTERESTS

The authors declare no conflict of interest

FUNDING

This study received no specific funding from public, commercial, or not for profit funding agencies.

AI TOOL DECLARATION

The authors declare that no AI and related tools are used to write the scientific content of this manuscript.

DATA AVAILABILITY

Data will be available on request

REFERENCES

[1] Thapa BR, Anuj W. Liver Function Tests and their Interpretation. Indian J Pediatr. 2007;74:663–671.

[2] Tiribelli C, Ostrow JD. New concepts in bilirubin and jaundice: report of the Third International Bilirubin Workshop, April 6–8, 1995, Trieste, Italy. Hepatology. 1996;24:1296–1311.

[3] Alvarez F, Berg PA, Bianchi FB. et al. International Autoimmune Hepatitis Group Report: review of criteria for diagnosis of autoimmune hepatitis. J Hepatol. 1999; 31:929.

[4] Sheth SG, Gordon FD, Chopra S. Nonalcoholic steatohepatitis. Ann Intern Med. 1997;126:137–145.

[5] James D, Tania SB, Sara ET. et al. Alanine Aminotransferase Levels and Fatty Liver in Childhood Obesity: Associations with Insulin Resistance, Adiponectin, and Visceral Fat. J Clin Endocrinol Metab. 2006;91:4287–4294.

[6] Panteghini M, Falsetti F, Chiari E. et al. Determinaton of Aspartate aminotransferase isoenzymes in hepatic disease. Lab J Res Lab Med. 1983;10:515–519.

[7] Cohen JA, Kaplan MM. The SGOT/SGPT ratio - an indicator of alcoholic liver disease. Dig Dis Sci. 1979; 24:835–838.

[8] Diehl AM, Potter J, Boitnott J. et al. Relationship between pyridoxal 5'-phosphate deficiency and aminotransferase levels in alcoholic hepatitis. Gastroenterology. 1984; 86:632–636.

[9] Edoardo Giannini, Domenico Risso, Federica Botta. et al. Validity and Clinical Utility of the Aspartate Aminotransferase–Alanine Aminotransferase Ratio in Assessing Disease Severity and Prognosis in Patients with Hepatitis C Virus–Related Chronic Liver Disease. Arch Intern Med. 2003;163:218–224.

[10] Sayal SK, Gupta CM, Das AL. et al. A comparative study of liver function tests in patients of chronic liver disorders with and without cutaneous manifestations. Ind J Dermatol Venereol Leprol. 1997;63:15–19.

[11] Giannini E, Botta F, Testa E. et al. The 1-year and 3-month prognostic utility of the AST/ALT ratio and model for end-stage liver disease score in patients with viral liver cirrhosis. Am J Gastroenterol. 2002; 97: 2855–2860.

[12] Sorbi D, Boynton J, Lindor KD. The ratio of aspartate aminotransferase to alanine aminotransferase: potential value in differentiating nonalcoholic steatohepatitis from alcoholic liver disease. Am J Gastroenterol. 1999; 94:1018–1022.

[13] Bayraktar M, Van T. Abnormalities in measures of liver function and injury in thyroid disorders. Hepatogastroenterology. 1997;44:1614–1618.

[14] McCullough AJ. Update on nonalcoholic fatty liver disease. J Clin Gastroenterol. 2002;34:255–262.

[15] Miya F, Shigeru A, Fumitada H. et al. 5'-nucleotidase activities in sera and liver tissues of viral hepatitis patients. Journal of Gastroenterology. 1990;25:199–205.

[16] Iluz-Freundlich D, Zhang M, Uhanova J, Minuk GY. The relative expression of hepatocellular and cholestatic liver enzymes in adult patients with liver disease. Ann Hepatol. 2020 Mar-Apr;19(2):204-208.

[17] Leoni S, Tovoli F, Napoli L, Serio I, Ferri S, Bolondi L. Current guidelines for the management of non-alcoholic fatty liver disease: A systematic review with comparative analysis. World J Gastroenterol. 2018 Aug 14;24(30):3361-3373.

[18] Kim E, Park SH. [Diagnosis and Severity Assessment of Alcohol-Related Liver Disease]. Korean J Gastroenterol. 2020 Aug 25;76(2):60-64.

[19] Park JS, Gayam V, Pan CQ. Review article: preventing hepatitis B graft infection in hepatitis B patients after liver transplantation: immunoglobulin vs anti-virals. Aliment Pharmacol Ther. 2020;52:944–954.

[20] Manns MP, Czaja AJ, Gorham JD, et al. Diagnosis and management of autoimmune hepatitis. Hepatology. 2010;51:2193–2213.

[21] Tannapfel A, Dienes HP, Lohse AW. The indications for liver biopsy. Dtsch Arztebl Int. 2012;109(27-28):477–483.

[22] Sarrazin C, Berg T, Ross RS, et al. Prophylaxis, diagnosis and therapy of hepatitis C virus (HCV) infection: the German guidelines on the management of HCV infection. Z Gastroenterol. 2010;48:289–351.

[23] Heidelbaugh JJ, Bruderly M. Cirrhosis and chronic liver failure: part I. Diagnosis and evaluation. Am Fam Physician. 2006 Sep 01;74(5):756-62.

[24] Poynard T, Mathurin P, Lai CL, Guyader D, Poupon R, Tainturier MH, Myers RP, Muntenau M, Ratziu V, Manns M, Vogel A, Capron F, Chedid A, Bedossa P., PANFIBROSIS Group. A comparison of fibrosis progression in chronic liver diseases. J Hepatol. 2003 Mar; 38(3): 257-65.

[25] Jiang Q, Jiang XH, Zheng MH, Jiang LM, Chen YP, Wang L. Rifaximin versus nonabsorbable disaccharides in the management of hepatic encephalopathy: a meta-analysis. Eur J Gastroenterol Hepatol. 2008 Nov; 20(11):1064-70.

[26] Critical issues in the diagnosis and treatment of liver cirrhosis Xing Wang,Bin Wu et al.Gastroenterology Report, Volume 7, Issue 4, August 2019, Pages 227–230.

[27] Schwarzenbach HR. [Jaundice and pathological liver values]. Praxis (Bern 1994). 2013 Jun 05;102(12):727-9.

[28] Bassari R, Koea JB. Jaundice associated pruritis: a review of pathophysiology and treatment. World J Gastroenterol. 2015 Feb 07;21(5):1404-13.

[29] Lardière-Deguelte S, Ragot E, Amroun K, Piardi T, Dokmak S, Bruno O, Appere F, Sibert A, Hoeffel C, Sommacale D, Kianmanesh R. Hepatic abscess: Diagnosis and management. J Visc Surg. 2015 Sep;152(4):231-43.

[30] Kaplan GG, Gregson DB, Laupland KB. Population-based study of the epidemiology of and the risk factors for pyogenic liver abscess. Clin Gastroenterol Hepatol. 2004 Nov; 2(11):1032-8.

[31] Abbas MT, Khan FY, Muhsin SA, Al-Dehwe B, Abukamar M, Elzouki AN. Epidemiology, Clinical Features and Outcome of Liver Abscess: A single

Reference Center Experience in Qatar. Oman Med J. 2014 Jul;29(4):260-3.

[32] Tsai FC, Huang YT, Chang LY, Wang JT. Pyogenic liver abscess as endemic disease, Taiwan. Emerg Infect Dis. 2008 Oct;14(10):1592-600.

[33] Hau T, Hartmann E. [Pathology, diagnosis and therapy of liver abscess]. Zentralbl Chir. 1987;112(9):529-47.

[34] Mohsen AH, Green ST, Read RC, McKendrick MW. Liver abscess in adults: ten years experience in a UK centre. QJM. 2002 Dec; 95(12):797-802.

[35] Dakhil N, Junaidi O, Befeler AS. Chronic viral hepatitis. Mo Med. 2009 Sep-Oct;106(5):361-5.

[36] Zeuzem S, Bechstein WO. Viral Hepatitis and Its Complications. Visc Med. 2016 Apr;32(2):78.

[37] Lowe D, John S. Autoimmune hepatitis: Appraisal of current treatment guidelines. World J Hepatol. 2018 Dec 27;10(12):911-923. [PMC free article] [PubMed]

[38] Yurdaydin C. Recent advances in managing hepatitis D. F1000Res. 2017;6:1596.

[39] Lisotti A, Azzaroli F, Buonfiglioli F, Montagnani M, Alessandrelli F, Mazzella G. Lamivudine treatment for severe acute HBV hepatitis. Int J Med Sci. 2008; 5(6): 309.

[40] Abenavoli L, Masarone M, Federico A, Rosato V, Dallio M, Loguercio C, Persico M. Alcoholic Hepatitis: Pathogenesis, Diagnosis and Treatment. Rev Recent Clin Trials. 2016;11(3):159-66.

[41] Easterbrook PJ, Roberts T, Sands A, Peeling R. Diagnosis of viral hepatitis. Curr Opin HIV AIDS. 2017 May;12(3): 302-314.